BEFORE THE
Federal Communications Commission
WASHINGTON, DC 20554

In the Matter of	)	
	)	
Amendment of Part 90 of the	)	
Commission's Rules and Policies	)	**WT Docket No. 01-146**
for Applications and Licensing	)	**RM-9966**
of Low Power Operations in the	)	
Private Land Mobile Radio	)	
450-470 MHz Band	)	

To: The Commission

COMMENTS OF THE AMERICAN PETROLEUM INSTITUTE

THE AMERICAN PETROLEUM INSTITUTE

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SUMMARY

The Land Mobile Communications Council ("LMCC") Consensus Plan does not adequately provide for the needs of many petroleum and natural gas companies. Upon re-examination of the proposals made by the Federal Communications Commission ("FCC" or "Commission"), API has concluded that the ten (10) channel pairs in Group A that have been allocated for low power throughout the country are insufficient. Because a substantial portion of the operations of the oil and gas companies are conducted beyond a fifty-mile radius of the 100 largest cities, there will not be sufficient channels to accommodate significant needs for low power systems. Accordingly, the Commission should make all 50 of the Group A channels pairs available for low power use nationwide.

Moreover, API does not believe that the Commission should allow the "slightly higher" transmitter output power of 5 watts TPO for mobiles and a 75 feet antenna height for base or fixed stations on the Group A channels. Because many of the units licensed as "mobiles" on these frequencies may serve as base or fixed stations, API recommends an across-the-board power limitation of 2 watts TPO, 20 watts ERP and a maximum 20 feet antenna height for all of the Group A low power channel pairs. For decades, the 2 watts TPO currently permitted for low power operations has been sufficient to meet the needs of the oil and gas companies, and API believes that this limitation promotes greater frequency reuse and efficient spectrum utilization.

API also urges the Commission to not permit the continued operation of high power systems that were erroneously licensed on the designated low power channels despite the application freeze. Grandfathering these licensees would reduce the number of low power

systems that could be accommodated throughout a considerable geographic area. API would prefer to see the number of available channels for low power operations increased, rather than reduced. API supports permitting secondary non-voice operations on the Group A channels, as well as allowing secondary voice operations on the Group B channels; API emphasizes that these operations should only be permitted on a secondary, non-interference basis.

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COMMENTS
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The American Petroleum Institute ("API"), by its attorneys and pursuant to Section 1.415 of the Rules and Regulations of the Federal Communications Commission ("Commission"), respectfully submits the following Comments in response to the Commission's *Notice of Proposed Rulemaking* ("NPRM") in the above-referenced proceeding.[1] The Commission has requested comment on the proposals made in the Petition for Rule Making submitted by the Land Mobile Communications Council ("LMCC") and in the Low Power Consensus Plan ("Consensus Plan") that designated certain UHF channel pairs to be reserved for low power use in the Private Land Mobile Radio Services ("PLMRS").

[1] 66 Fed. Reg. 47435 (2001).

I. PRELIMINARY STATEMENT

1. API is a national trade association representing approximately 350 companies involved in all phases of the petroleum and natural gas industries, including the exploration, production, refining, marketing and transportation of petroleum, petroleum products and natural gas. The API Telecommunications Committee is one of the standing committees of the organization's Information Systems Committee. The Telecommunications Committee evaluates and develops responses to state and federal proposals affecting telecommunications facilities used in the petroleum and natural gas industries.

2. API's Telecommunications Committee is supported and sustained by licensees that are authorized by the Commission to operate, among other telecommunications systems, facilities in the PLMRS. Many of these systems employ frequency assignments from the 450-470 MHz ("UHF") band. Petroleum and natural gas companies utilize these systems, for example, to support the search for and production of petroleum and natural gas, to ensure the safe pipeline transmission of natural gas, crude oil and refined petroleum products, to process and refine these energy sources and to facilitate their ultimate delivery to industrial, commercial and residential customers. These systems are employed for two-way mobile radio voice and data communications that support day-to-day operations, many of which are undertaken in challenging work environments. They are also critical to initiate and coordinate rapid response to emergency incidents. Due to the importance of these PLMRS systems to the operations of its members, API has participated in all of the Commission's major rule making proceedings that have addressed the use of spectrum in the UHF band, including all phases of the agency's

"refarming" proceeding.[2]

3. API initially supported the Consensus Plan when it was submitted by the LMCC in 1997. When the NPRM was released in July, 2001, the API Telecommunications Committee evaluated the current needs of the oil and gas industries for low power UHF systems and re-examined the geographic, technical and operating parameters governing the use of these systems by energy companies. Upon consideration of the specific requirements of the oil and gas industries, and in light of the development of these needs in the approximately five years that have passed since the Consensus Plan was developed, API has concluded that several components of the Consensus Plan are no longer responsive to the needs of the petroleum and natural gas industries. Accordingly, these Comments advocate changes to several of the proposed operating parameters.

II. COMMENTS

4. In recognition of the continued need for low power PLMRS operations in the 450-470 MHz band, the Commission authorized the certified frequency coordinators to determine which regularly assignable channels should be designated for low power use. The Petition for Rule Making submitted to the Commission by the LMCC, representing the PLMRS frequency coordinators, contained the low power channel pair designations, which are divided into four groups with different technical and operating requirements.[3] The LMCC Petition also spelled out other elements of the Consensus Plan that necessitate amendment of the Commission's Rules

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[2] Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Services, PR Docket No. 92-235.

[3] See Petition for Rulemaking of the Land Mobile Communications Council (RM-9966), filed Sept. 11, 2000.

and Regulations.

A. API Supports Only Low Power Use on the Group A Channels

5. The Consensus Plan envisions that the frequency assignments in Group A will consist of fifty low power channel pairs, with ten of those channel pairs to be available nationwide, and forty channel pairs to be available for low power only within a fifty-mile radius of the top 100 urban areas. The proposed rules would permit a "slightly higher" power of 5 watts Transmitter Power Output ("TPO") for mobile/portable units and 20 watts Effective Radiated Power ("ERP") for fixed/base stations with a maximum antenna height of 75 feet above ground. Full power operations would be permitted on the forty channel pairs outside the fifty-mile radius of the top 100 urban areas.

6. Under the Commission's current rules, low power mobile units are restricted to a maximum TPO of 2 watts.[4] API does not believe that there has been a demonstrated need for the use of the "slightly higher" TPO of 5 watts for mobile units operating on the Group A low power channel pairs. It is opposed to the adoption of this element of the Consensus Plan. In the past, the 2 watts TPO limitation has been sufficient to meet the low power needs of oil and gas industry licensees, as well as other users. This operating parameter has been a fixture of the UHF low power environment for at least thirty years.[5] Maintaining this fundamental ingredient of low power operations promotes greater frequency reuse and efficient spectrum management. It is also noted that 2 watts TPO is the proposed operating parameter for the remaining low power channel Groups under the Consensus Plan. Applicants and users having a requirement for

[4] See 47 C.F.R. § 90.267.

higher TPO should use the channels dedicated to high power operation.

7. Inasmuch as low power systems are licensed as "mobiles," regardless of whether the functions served are mobile, base or fixed, a uniform power ceiling will promote consistent coordination and licensing, as well as user compliance.[6] Currently, under the Commission's rules, PLMRS systems may be licensed as mobile only. The units that are licensed as "mobile" may also serve as base or fixed stations. In that regard, API does not believe that the Group A channels should be assigned operating parameters, as envisioned by the Consensus Plan, according to whether the system is licensed as "mobile" (5 watts TPO) or "base" (20 watts ERP with 75 feet antenna height). API believes, instead, that an across-the-board 2 watts TPO and 20 watts ERP maximum power limitation on all Group A channels will meet the needs of the low power licensees; and, at the same time, it believes that this uniform power limitation will promote greater spectrum efficiency by permitting more users on each channel.

8. Adoption of the TPO and ERP limitations recommended by API will reduce the occurrence of interference problems among low power systems. In some petroleum refineries, several hundred co-channel mobile units may be operated within a single facility without causing interference. Using the factors of limited transmitter power and antenna heights, coupled with geographic separation, permits channel reuse without causing interference to other systems – even within the same facility. The refinery context is only an example; this same scenario of channel reuse also applies more broadly to other low power operations. API, therefore, recommends that all Group A frequencies, whether base, fixed or mobile, be limited to 2 watts

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[5] See Amendment of Parts 89, 91, 93, and 95 (formerly 10, 11, 16, and 19) of the Commission's Rules to Reduce the Separation Between the Assignable Frequencies in the 450-470 Mc/s Band, *Second Report and Order*, FCC Docket No. 13847, at ¶ 33 (rel. Feb. 9, 1968).
[6] See e.g., 47 C.F.R. § 90.35(c)(11).

TPO, with a maximum of 20 watts ERP and 20 foot antenna height above ground.

B. The Fifty Low Power Group A Channel Pairs Should be Available Nationwide

9. The Consensus Plan contemplates that forty of the fifty Group A channel pairs would be designated for low power use only within a 50 mile radius of the top 100 urban areas. These same channels would be available for full power operations in areas beyond the urban concentrations. Although the Commission has not yet determined specifically how to designate the top urban centers, it is likely that a significant number of facilities operated by oil and gas industry licensees will fall outside the fifty-mile circle of the top 100 urban areas. For example, according to data reported by the U.S. Department of Energy, there are currently 155 oil refineries operating in the United States.[7] UHF low power systems are presently used extensively at petroleum refineries and petrochemical plants. Utilizing a table of cities listed in Part 90 of the Commission's rules, nearly 40% of the refineries are located outside the fifty-mile circle of the top urban areas.[8] UHF-systems are also widely used on manned offshore petroleum and natural gas production platforms in the Gulf of Mexico. Almost all of these platforms are located beyond fifty miles of the 100 top metropolitan areas. Ten channel pairs is a woefully inadequate number of channels to serve these needs.

10. API believes that designating low power channels based on proximity to an urban

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[7] See U.S. Petroleum State Data, < http://www.eia.doe.gov/emeu/states/_states_pet.html >(last modified Sept. 7, 2001).

[8] See 47 C.F.R. § 90.741. In a number of states, such as Arkansas, Kentucky, Montana, and New Mexico, all of the refineries operated in the state fall outside the fifty-mile circle. Many refinery operations in other states, such as in Lake Charles, Louisiana, are outside the fifty-mile circle and are in close proximity to the Gulf of Mexico, an area of intense spectrum utilization. One refinery in Lake Charles, for example, is authorized to employ 24 UHF low channel pairs. Likewise, in Texas, there are several refineries in Beaumont and Port Arthur that will also fall outside the fifty-mile radius of a top urban center.

area is not necessarily the appropriate measure. In the experience of the oil and gas companies, it is system requirements, and not geography, that dictates whether high power or low power use is appropriate. In that regard, urban density does not automatically correlate with congestion in these bands. Likewise, there is not necessarily a diminished need for low power channels because operations are located outside a metropolitan area. If the demand for high power channels is not present, it is not spectrally efficient to reserve these channels for high power use simply based on the distinction between urban and rural, especially if there is a need for additional low power channels in a particular geographic area.

11. In the event that the Commission concludes that some distinction should be made based on urban areas, however, API strongly recommends that the Commission use a table listing specific cities, such as the table set forth in Section 90.741, to establish a clear definition in the rules that specifies which cities are to be used for this distinction. The Commission also requested comment on whether the top "100" urban areas is the appropriate cutoff, or if 50 or 20 is a more appropriate designator. If the "urban area" benchmark is adopted, API strongly urges the Commission to make the cutoff *no less than* the top 100 urban areas; as discussed above, many oil and gas company operations fall outside the fifty mile radius of urban areas and reducing the cutoff designation will further limit the availability of low power channels nationwide. If the low power channels are not to be made available on a nationwide basis, and the number of controlling cities is to remain at 100, the radius clearly must be extended to at least 75 miles.

12. To further address the issue of a frequency allocation for systems operating outside the urban centers, the Commission proposed creating an intermediate power category (21-100 watts) (*e.g.,* in rural areas where 2 watts TPO may not be sufficient). (See *NPRM* at

¶15). As already discussed, API strongly supports the designation of additional channels outside the urban areas for low power use. According to the Commission's proposal made in the NPRM, the channels in the "intermediate" power category would be taken from the pool of high power channels authorized outside the top urban areas; API wishes to emphasize that, if adopted, any "intermediate" power channels should not be designated in place of an allocation of frequencies for low power use. Moreover, if such an alternative category is adopted, the Commission should specify the use of ERP, not TPO, because permitting a power output in excess of 20 watts TPO would effectively, in API's view, be considered "high" power.

13. In this context of an "intermediate power" category, the Commission also raises the relevance of devices with automated power control ("APC"), which allow communications systems to automatically adjust the output power of mobile/portable transmitters. (See *NPRM* at ¶ 15). While API recognizes the benefits of reducing unnecessary RF output and decreasing the potential for interference with other licensees, requiring the use of these devices is not realistic. API members currently operate tens of thousands of mobile units that are not equipped with this technology; therefore, requiring the use of APC could impose significant financial burdens on these licensees or effectively prevent them from utilizing these channels. Additionally, APC devices are not necessarily appropriate in this context; the low power channel designations and frequency coordination are preferable methods for ensuring protection for low power systems.

C. Low Power Licensees Should be Protected from Interference from High Power Licensees (Group A)

14. The Commission requested comment on whether mobile and portable operations outside the fifty-mile circle (or the alternative designator) should be protected and included in the

coordination analysis. (See *NPRM* at ¶17). In order to adequately protect incumbent oil and gas industry systems operating on the low power channels, appropriate technical standards for coordination should be specified. As suggested by the Commission, high power operations in proximity to the protected circle, if that mechanism is employed, could cause significant interference to nearby low power operations; a receiver does not have the ability to discriminate between an intended signal and interference from other systems.

15. It is essential to insure the integrity of the systems operated by oil and gas industry licensees; and this may be accomplished by establishing technical criteria for the protection of operations on these channels. API advocates the use of contour analysis to protect low power users from co-channel or adjacent channel high power licensees operating near any border that divides low and high power systems. In that regard, API suggests the following: for co-channel UHF operations on these frequencies, an applicant's 21 dBu contour may not overlap the 39 dBu contour of an incumbent system; for adjacent UHF operations, an applicant's 33 dBu contour may not overlap the 39 dBu contour of an incumbent system. API also notes that making the 50 channel pairs in Group A available for low power use nationwide would alleviate the problem of potential interference near the "border" of the fifty-mile radius.

D. API Supports Permitting Non-Voice (Data) Operations on a Secondary, Non-Interference Basis on the Group A Channels

16. The Commission's current rules permit secondary telemetry operations on the channel pairs designated for Group A, and it has requested comment on whether it should continue to authorize secondary telemetry operations on the Group A channels. (See *NPRM* at ¶18). Petroleum and natural gas company licensees utilize wireless data systems in addition to their voice communications; these systems often provide mission-critical communications

capabilities. Low power frequencies are used, for example, to support telemetering applications associated with petroleum and natural gas production activities, and as a component of crucial Supervisory Control and Data Acquisition ("SCADA") systems that allow licensees to remotely monitor and control pipeline facilities. Accordingly, API strongly supports the continued use on a secondary basis of non-voice applications on the low power channels in Group A.

17. API does wish to emphasize, however, that data systems can potentially cause harmful interference to critical voice operations. Such operations should, therefore, only be authorized on a strictly secondary, non-interference basis. In any event, existing non-voice use of the Group A channels should be grandfathered due to the lack of available spectrum relocation options for these systems. Likewise, existing voice operations on Group B channels should be grandfathered and incumbents should be permitted primary voice operations pursuant to their existing authorizations.

E. The Commission Should Permit Continuous Data Transmission on the Group B Channels and These Channels Should Be Designated as "Data Primary"

18. The Commission requested comment on whether it should permit continuous data transmission on the Group B channels, or whether it should require specified duty cycles. (See *NPRM* at ¶19). Due to the fact that the Group B channels are designated for low power, coordinated use, API does not oppose permitting continuous data transmissions on the Group B channels. API agrees that continuous data transmission could limit the availability of these frequencies for re-use by other licensees, due to the inability of such systems to monitor for other signals and therefore share the assignment. In light of the fact, however, that the Group B channels are coordinated, limited to low power, and available on a nationwide basis, API believes that there is insufficient reason to prohibit continuous transmission on these data

channels.

19. The Group B channel pairs should be designated as "data primary," rather than "data only." API supports the designation of frequencies for data use; however, it does not consider it necessary to prohibit secondary voice operations on these channels. As noted in the NPRM, petitioners have predicted catastrophic results if shared use is permitted by data and voice operations; in light of the mission-critical safety-related functions of the communications systems operated by oil and gas industry licensees, API affirms the importance of maintaining the integrity of these communications systems. However, API believes that, due to the need for spectrum to accommodate additional low power systems, voice operations should be permitted on these channels on a strictly secondary, non-interference basis. In addition, as in the case with non-voice operations on the Group A frequencies, existing licensees should be grandfathered and permitted continued operation in accordance with their existing authorizations.

F. Miscellaneous Issues

20. The Commission notes in the NPRM that it has licensed high power operations on the 12.5 kHz offset channels, some of which are included in the low power Consensus Plan. API submits that high power operations licensed on the 12.5 kHz offset channels specifically designated for low power use should be required to move to an appropriate high power channel. These systems should not be grandfathered because permitting these operations on the designated low power channels will further reduce the relatively limited number of designated low power channels that will be available over a considerable geographic area.

21. The Commission also requested comment on the advantages and disadvantages of licensing base and mobile units on both sides of a channel pair (*i.e.,* rather than permitting base

and mobile units on the low side of the channel pair and restricting the high side to mobile only). While API recognizes that restricting the high side of a channel pair to mobile operations may have the advantage of facilitating frequency coordination, it supports licensing base and mobile operations on either side of the channel pair. If one side of the channels pair is explicitly restricted, there is the potential for underutilized spectrum on that side of the pair. API believes that the Commission should not preclude the frequency coordinators from licensing systems on both sides of a channel pair.

III. CONCLUSION

22. API commends the Commission's efforts to promote efficient frequency assignments in the PLMRS bands and, at the same time, seek to ensure the public safety. As members of the Critical Infrastructure Industries ("CII"), petroleum and natural gas licensees require assurance that their operations will be protected from harmful interference in light of the critical safety functions served by these communications systems.

23. As API has emphasized in the past, it is essential that its members have continuous, reliable communications capabilities. When an emergency situation occurs, reliance on commercial providers may be inadequate to meet the critical public safety needs of these licensees. As evidenced by the recent national events, both cellular and wireline communications become flooded with calls in emergency situations and are quickly overloaded, making it difficult, if not impossible, to place a call using commercial services. Petroleum and natural gas companies have a low tolerance for communications disruptions; and, for critical public safety reasons, these licensees cannot risk service interruptions. It is crucial that these

licensees are provided with the interference protection required to sustain the integrity of their systems. Additionally, it is important to stress the overriding importance of maintaining the availability of spectrum for CII licensees for their private, internal communications systems that provide essential safety related functions and are critical to the provision of our nation's energy sources.

WHEREFORE, THE PREMISES CONSIDERED, the American Petroleum Institute respectfully submits the foregoing Comments and urges the Federal Communications Commission to act in a manner consistent with the views expressed herein.

Respectfully Submitted,

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